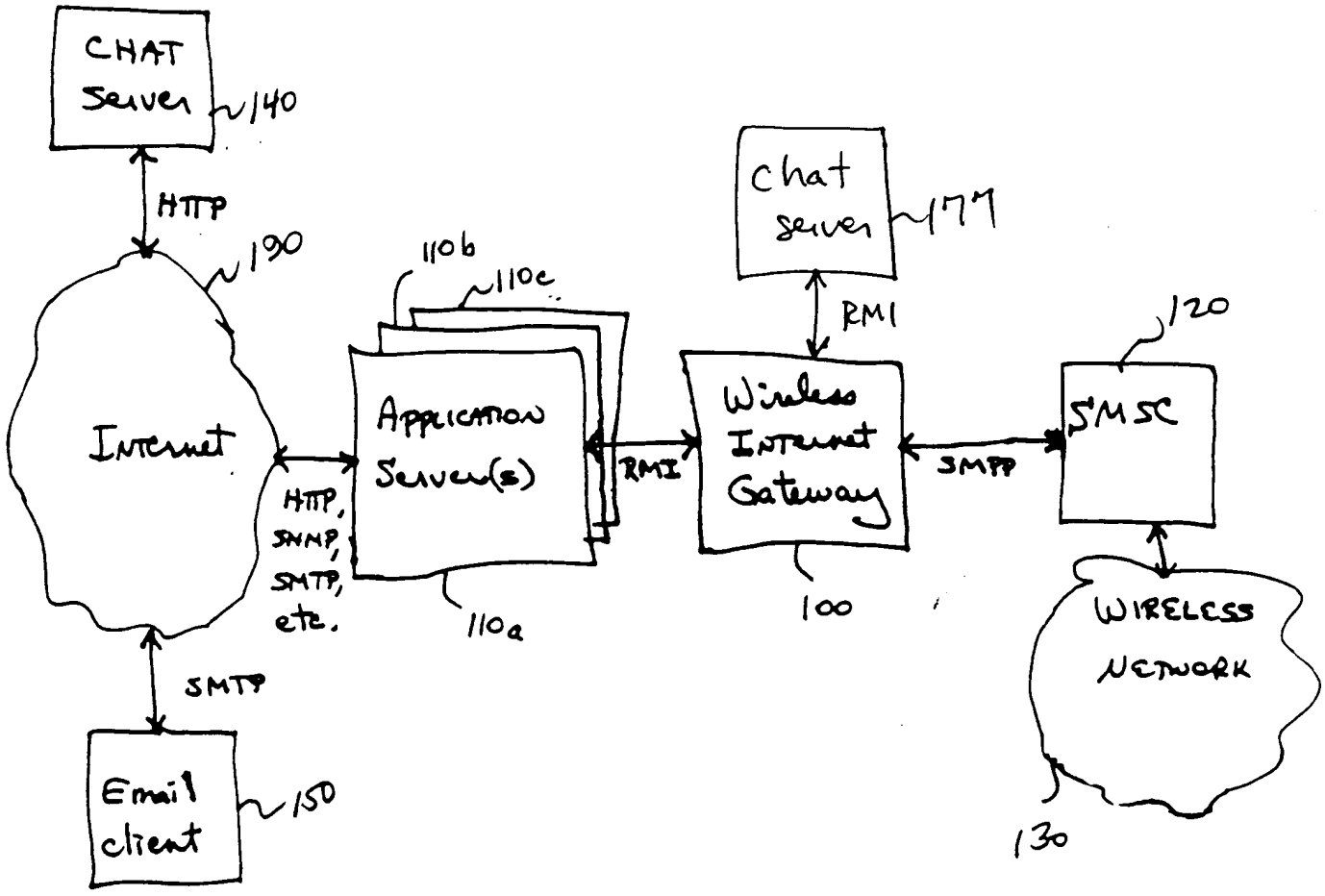

CHAT Server
140
HTTP
190
Internet
HTTP, SNMP, SMTP, etc.
110b
110c
Application Server(s)
110a
RMI
Chat Server
177
RMI
Wireless Internet Gateway
100
SMPP
120
SMSC
WIRELESS NETWORK
130
SMTP
Email client
150

FIG. 1

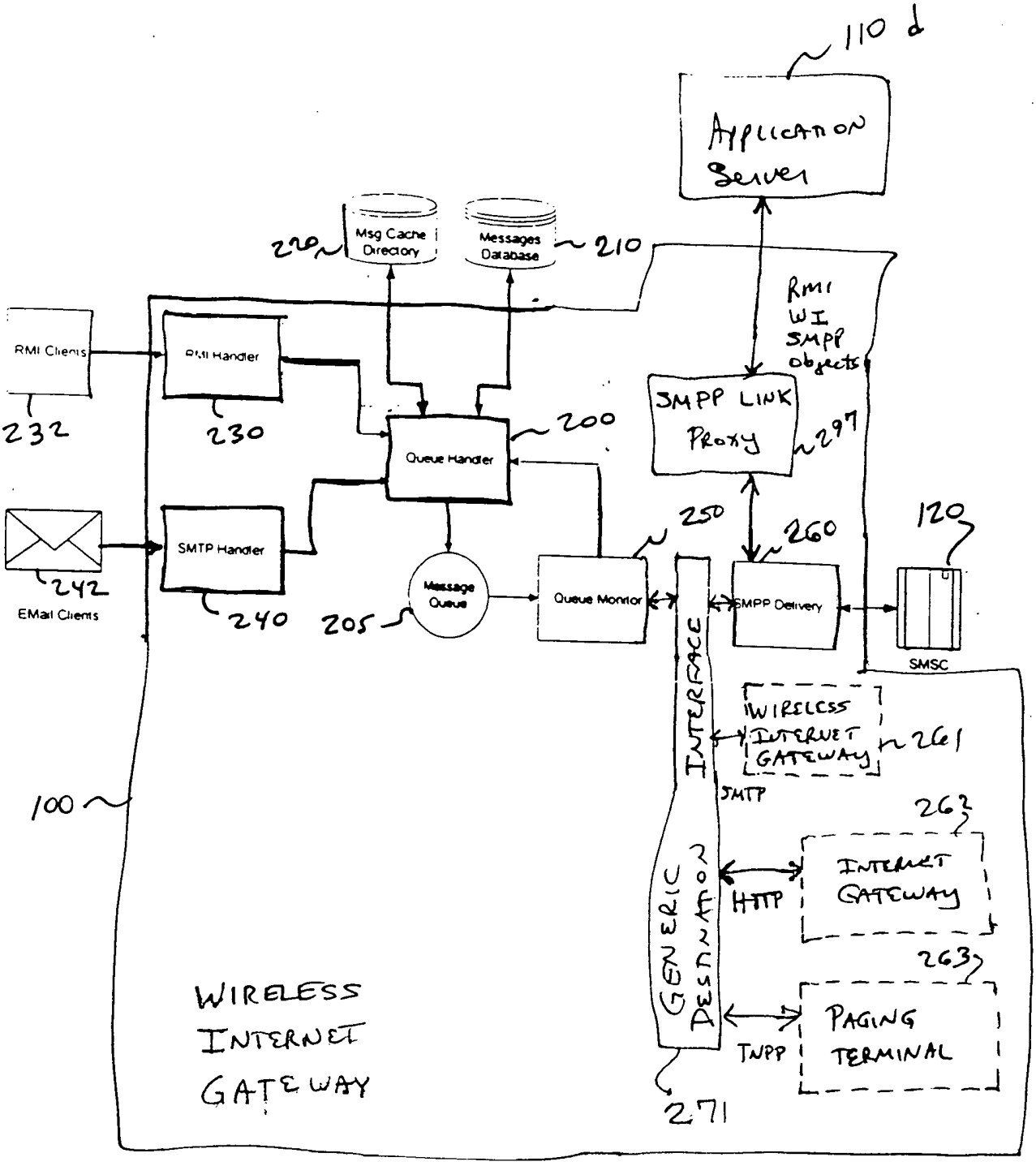
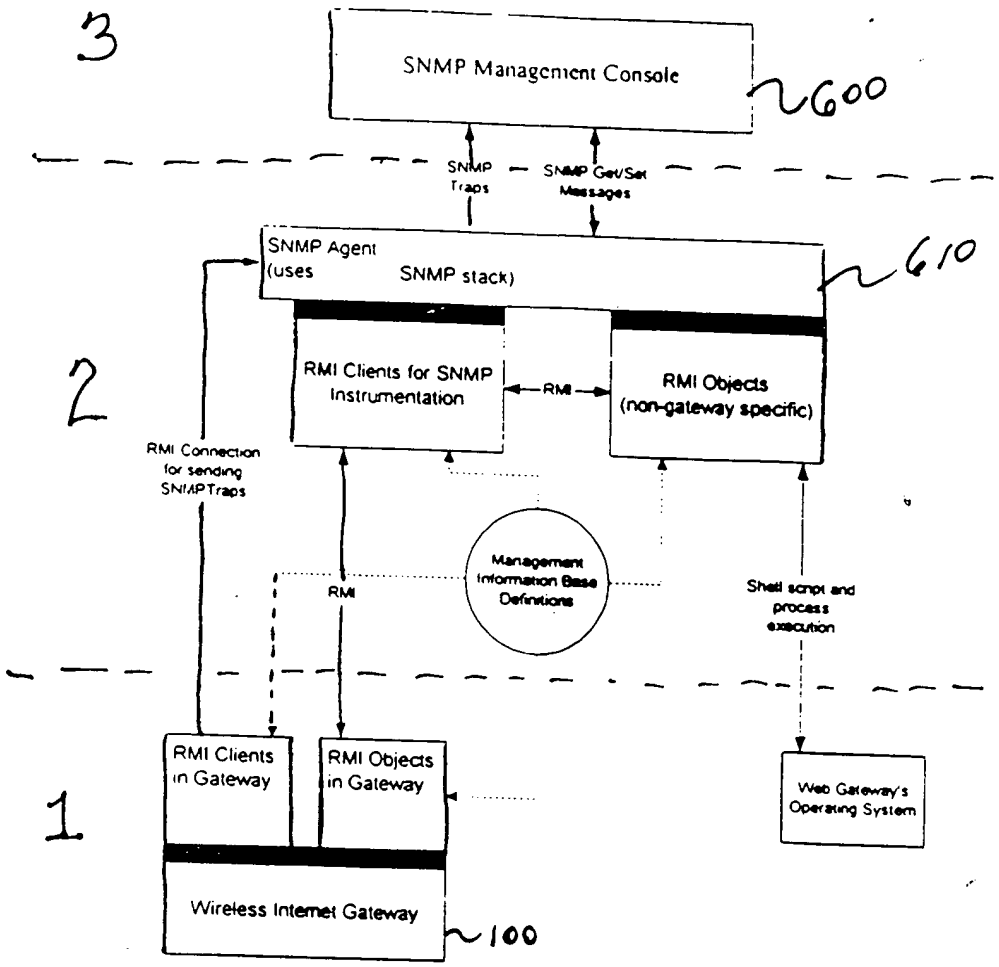

110 d
Application Server
Msg Cache Directory
Messages Database
220
210
RMI Clients
232
RMI Handler
230
Queue Handler
200
RMI WI SMPP objects
SMPP LINK Proxy
297
SMTP Handler
240
242
EMail Clients
Message Queue
205
Queue Monitor
250
SMPP Delivery
260
120
SMSC
INTERFACE
GENERIC DESTINATION
WIRELESS INTERNET GATEWAY
261
SMTP
262
INTERNET GATEWAY
HTTP
263
PAGING TERMINAL
TNPP
271
100
WIRELESS INTERNET GATEWAY

FIG. 2



SNMP-Gateway Interfaces

FIG. 3

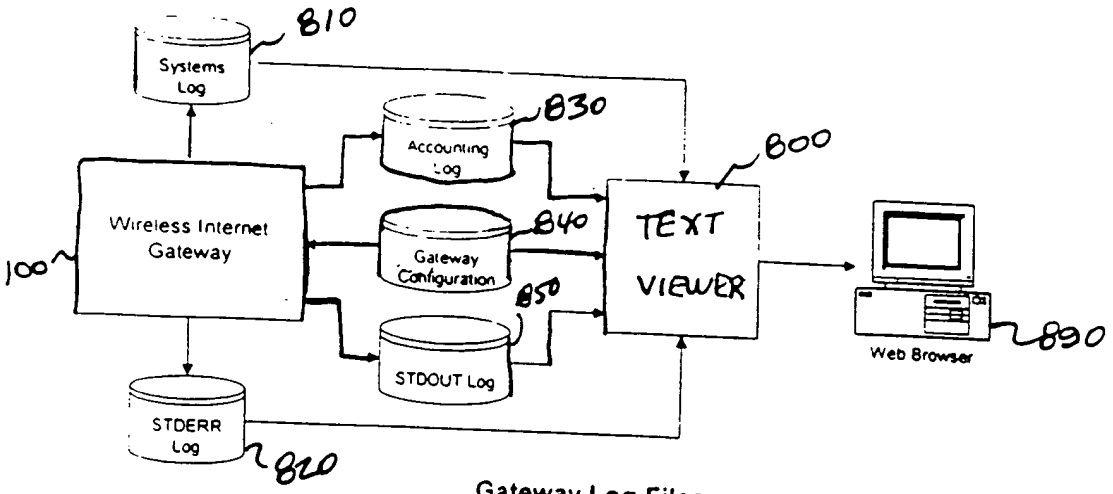

Systems Log
810
Accounting Log
830
800
Wireless Internet Gateway
100
Gateway Configuration
840
TEXT VIEWER
850
STDOUT Log
Web Browser
890
STDERR Log
820
Gateway Log Files

FIG. 4

```
# ------------------------------------------------------------------------
#       smscgw.conf:   Configuration File for TCS SMS Web Gateway
#                      (c) 1998,1999,2000 TCS, Inc.
# ------------------------------------------------------------------------
# ------------ Identification -------------------------------
GW_ID                  A
GWName                 admin@demosys.com      # Msg Identifier for GW
shutdown_MIN           0000000009             # Email address for gw msgs
                                              # MIN to shutdown gateway

# ------------ System Output --------------------------------
basedir                ./                     # base location of files
accountinglogfile      logs/acc.log           # account log file name
systemlogfile          logs/system.log        # system log file name
accountingloglevel     9                      # Level of accounting log detail
systemloglevel         9                      # Level of system log detail
debugmode              yes                    # Sends SMPP info to StdOut
so_email_debug         yes                    # Show SMTP Interactions


smtpSocketTimeout          10                 # Time socket waits for input
                                              #   before it times out
smtpSocketLinger           10                 # Time OS keeps socket alive
                                              #   after application closes socket
smtpListenerSleepInterval 50                  # Time (milliseconds) to pause
                                              #   between successive SMTP connections
                                              #   50 millieseconds implies 200
                                              #   connections per second


# ------------ Database References ---------------------------
MessageStoreType       DB                     # File System (FS) or Database
                                              # (DB) storage or None or DB Cache(DBC)

# Connection information for accessing the Message Store
MessageStoreDbClass      oracle.jdbc.driver.OracleDriver
MessageStoreDbUrl        jdbc:oracle:thin:@dbhost.demosys.com:1521:ORCL
MessageStoreDbAccount    webdb
MessageStoreDbPw         private

msgLifespanHours       8                      # How long to retain message data
requeIntervalSecs      60                     # How often to requeue unack'd msgs
```

TABLE 1

Confidential - Subject to Protective Order

```
q_cachepath                ./cache/
q_msgpath                  ./messages/              # directory for unack'd msg indicators
PendingCacheThreshold 50                            # directory for FS database files
PollPendingCache 10


# ------------ Features ----------------------------------
enable_smtp                yes                      # Enable Email Support
smtp_port                  25                       # Port for receiving email
enable_web                 yes                      # Enable RMI for Web (and other RMI clients)
enable_smpp                yes                      # Enable SMPP output to SMSCs (reqd)
enable_calendar            no                       # Enable Web Calendar support

enable_monitor             yes                      # Enable free memory monitor
memoryCheckRestTime        180000                   # ms time for checking avbl memory
memoryThreshhold           256                      # kb threshold for generating alert

msg_maxlen                 90                       # Max length in a single message
msg_link_maxlen            150                      # Max total length of msg through linking

enable_antispam            yes                      # Enable msg qty limitations
SpamMaxSendQty             100                      # Max no. msgs that can be sent per period
SpamMaxRecvQty             100                      # Max no. msgs that can be recvd per period
SpamTimePeriod             1                        # Time period, in hours
SpamInValidSenders         987.654.321.000          # Senders that are always refused
SpamValidSenders           admin@demosys.com        # Sender exempt from anti-spam checks
SpamValidReceivers         9876543210,1234567890    # Receivers exempt from anti-spam checks

forceSNReturnReceipt       no                       # Always request return receipt from SMSC

AlwaysDoEmailReceipt       no                       # Always send a receipt to E-mail senders
AlwaysDoEmailReceipt_Exclude demosys.com            # Senders to exclude if above is enabled

validateScheme                   0                  # 0=RANGE, 1=LOOSE, 2=EXPLICIT

supportAltAddressing       yes                      # PIN/Alias lookups allowed
minLength                  10                       # Length of a valid MIN
PinLength                  6                        # Length of a valid PIN.
PinPrefix                  P.                       # Prefix to identify PINs

supportSubmitTranslate     no                       # Do User vs Submit Address (DN/MIN) xlation


heartbeatsecs              180                      #seconds between heartbeats; 0 = no
heartbeat


# ------------ Message Destinations ------------------------
sn_count                   1                        # Number of SMSCs attached

sn_type0                         tcs.ain.smsgw.SmsGwSNSMPPLink

serializeSmppTraffic yes

smpp_host0                 localhost                # Host name of first SMSC
smpp_TXport0               7001                     # SMPP Tx port for first SMSC
smpp_RXport0               7002                     # SMPP Rx port for first SMSC
smpp_bind_password0        secret                   # SMSC/SMPP Password
smpp_bind_sysID0           EE                       # SMSC/SMPP System ID
smpp_bind_sysType0         INET_GW                  # SMPP Client identifier
smpp_valid_min_range0      3102800000 5102802000 0000000009 0000000009
smpp_template0             1                        # SMSC Template for sending messages
smpp_callback_trigger0      $A                      # Trigger for embedding callback number
smpp_message_trigger0       $M                      # Trigger for identifying message text
smpp_service_type0         PAGE                     # Service Type; Comment out for Aldiscon
smpp_src_addr_ton0         0                        # Type of Number; TCS=0
smpp_src_addr_npi0         0                        # Numbering Plan Indentity; TCS=0
smpp_dst_addr_ton0         :
smpp_dst_addr_npi0         :
```

Table 1-Sample Gateway Configuration File (cont'd)

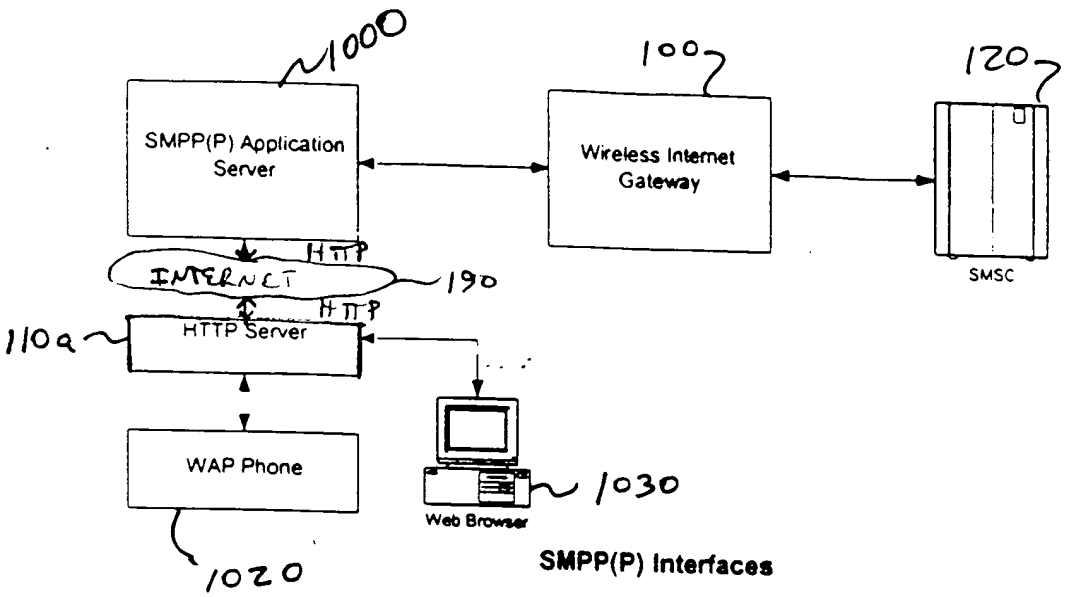


FIG. 5

09526360.030502

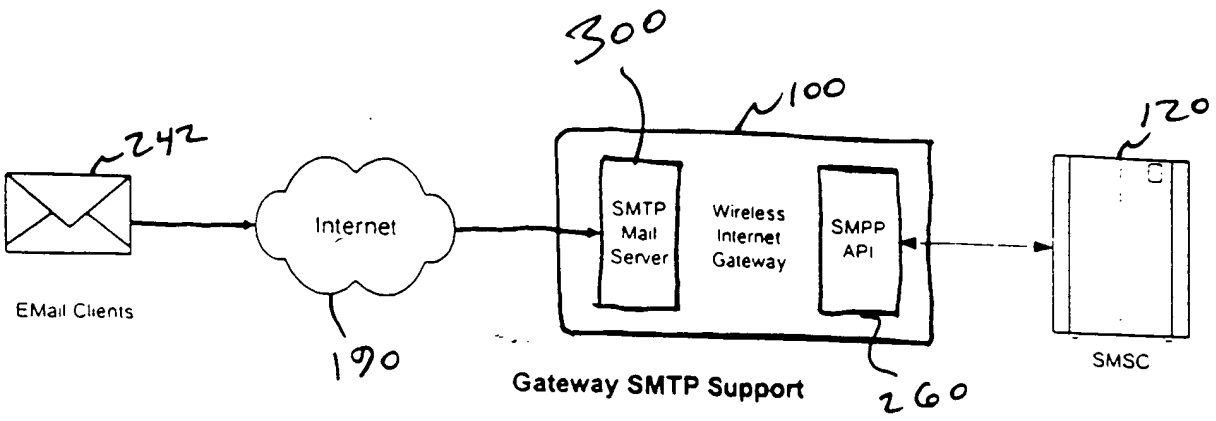
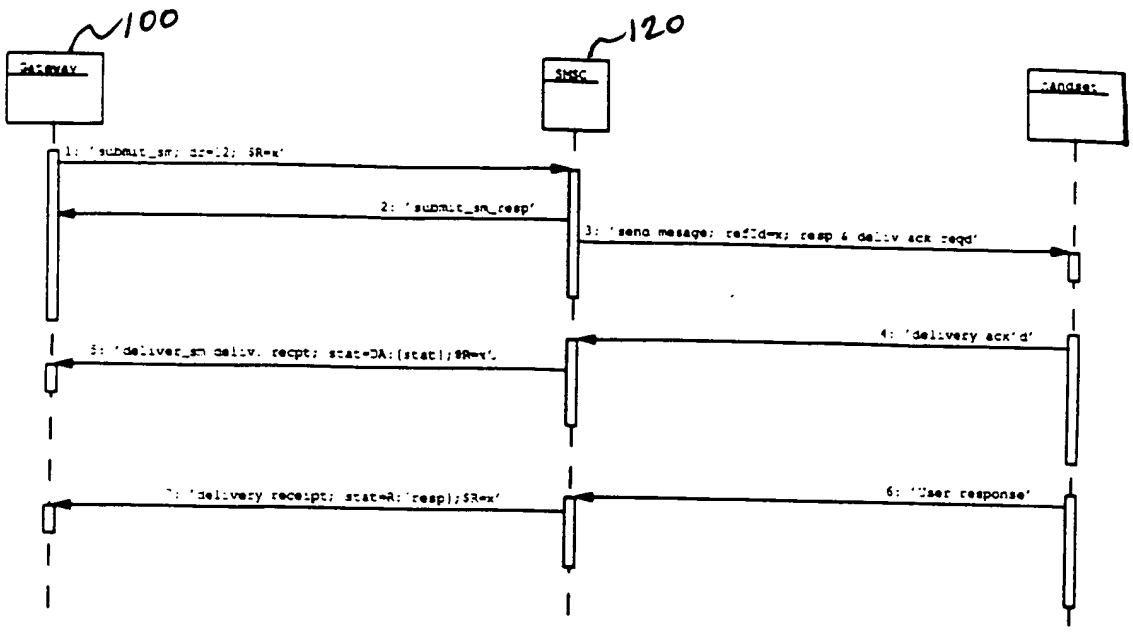

300
100
120
242
Internet
SMTP Mail Server
Wireless Internet Gateway
SMPP API
EMail Clients
190
Gateway SMTP Support
260
SMSC

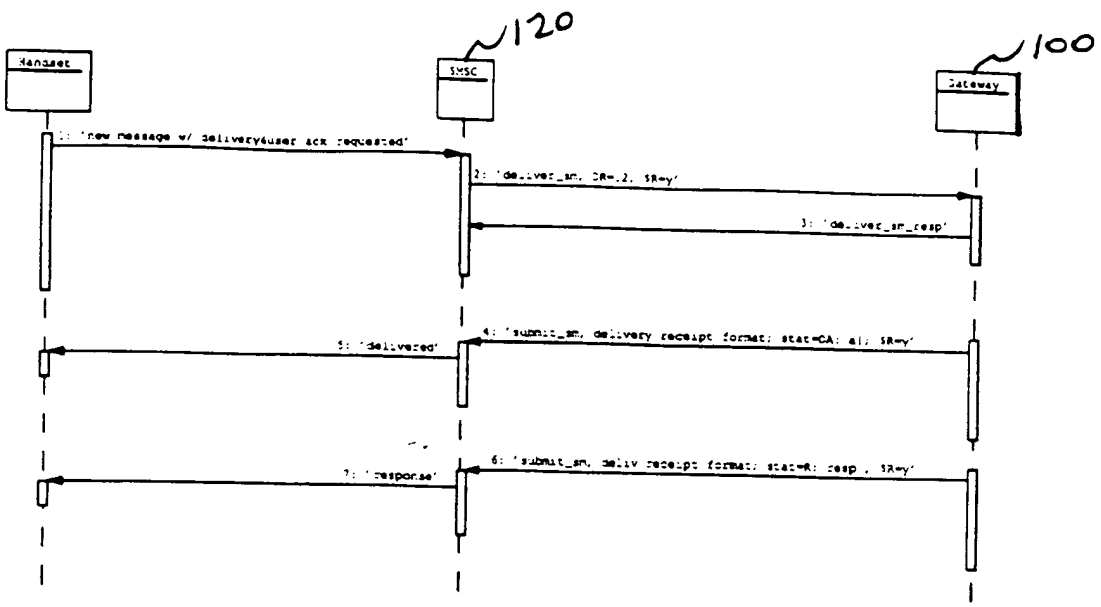
FIG. 6



Mail Send/Receipt Process from Gateway

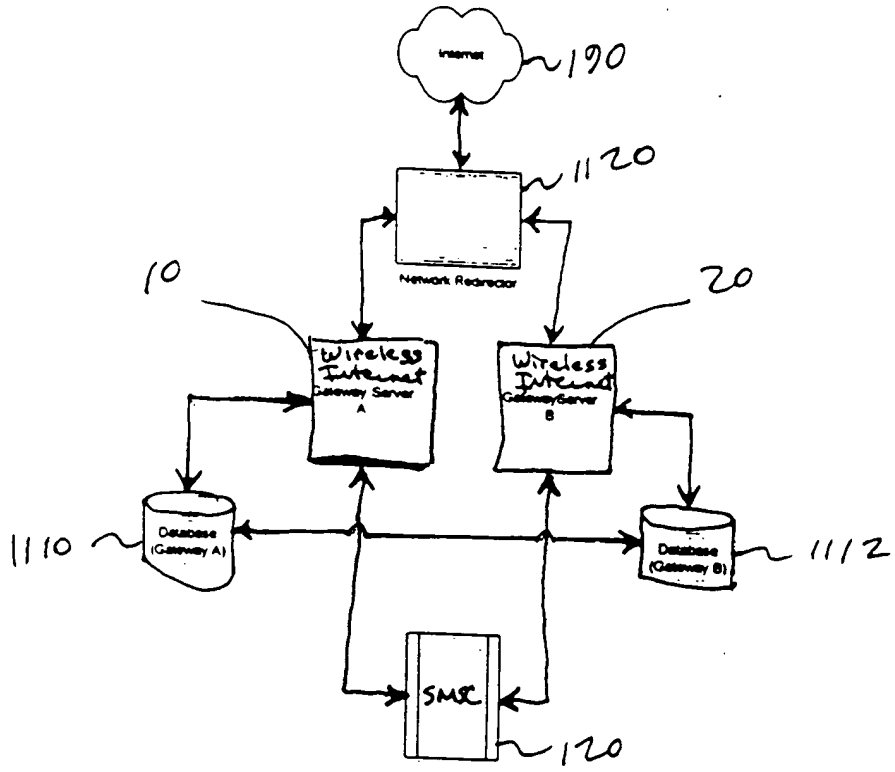
FIG. 7A

09/28/2004, EAST Version: 2.0.1.4



Mail Send/Receipt Process from Handset

FIG. 7B



Redundant Configuration of Wireless Internet Gateways

FIG. 8

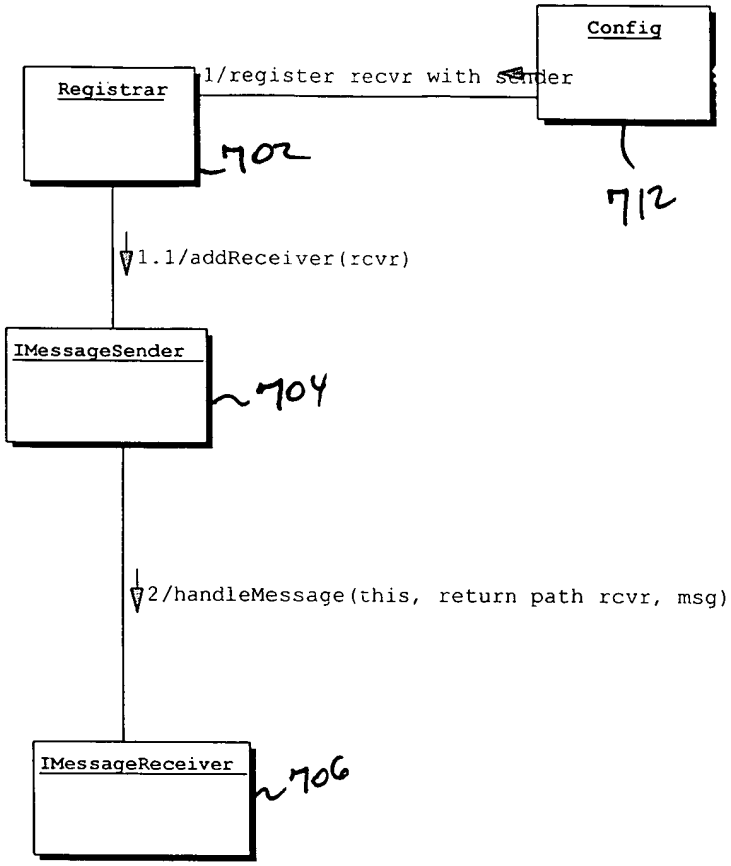

Config
Registrar
1/register recvr with sender
702
712
1.1/addReceiver(rcvr)
IMessageSender
704
2/handleMessage(this, return path rcvr, msg)
IMessageReceiver
706

FIG. 9A

09603.0050.00000

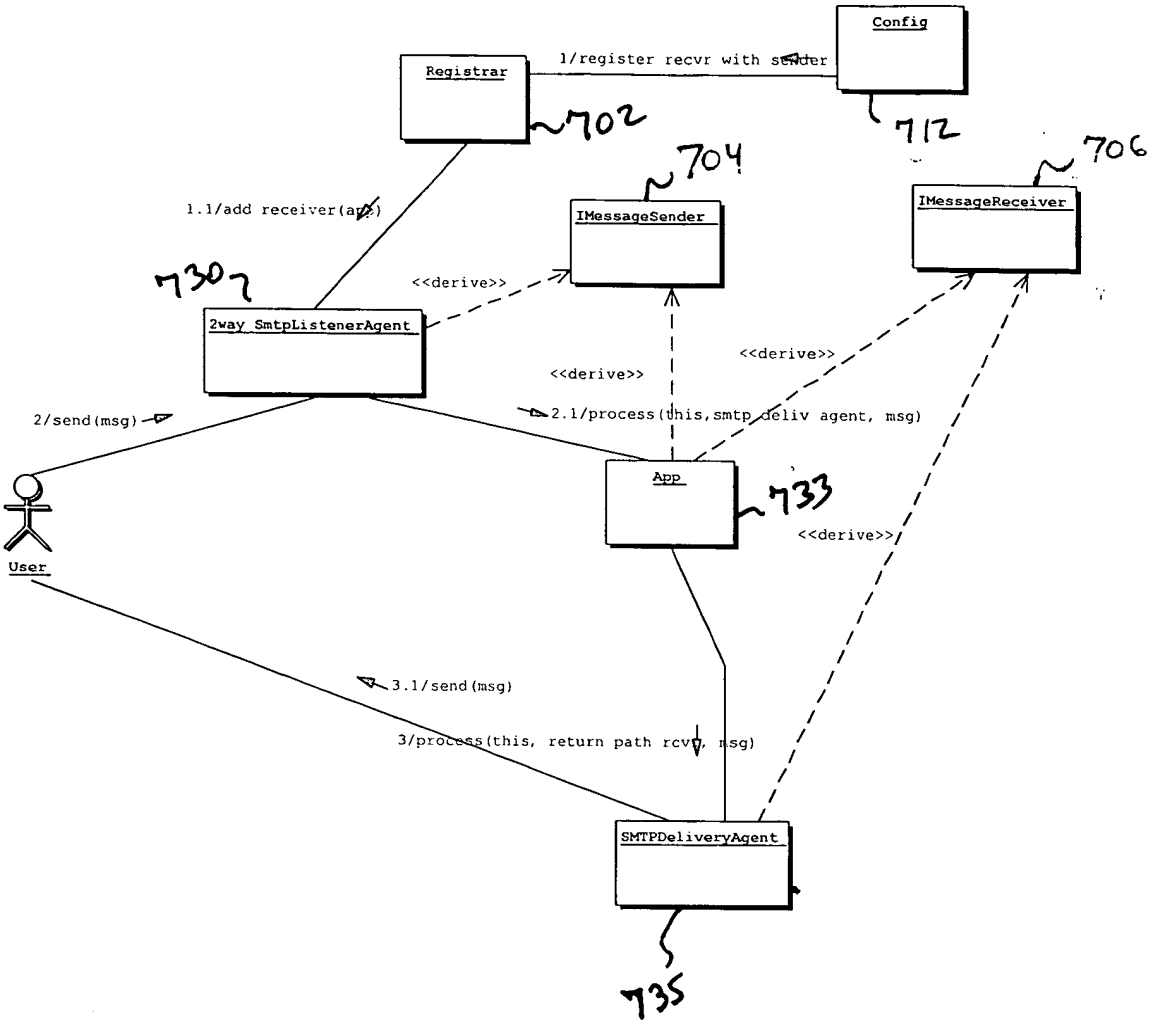


FIG. 9B

RMI Scenario

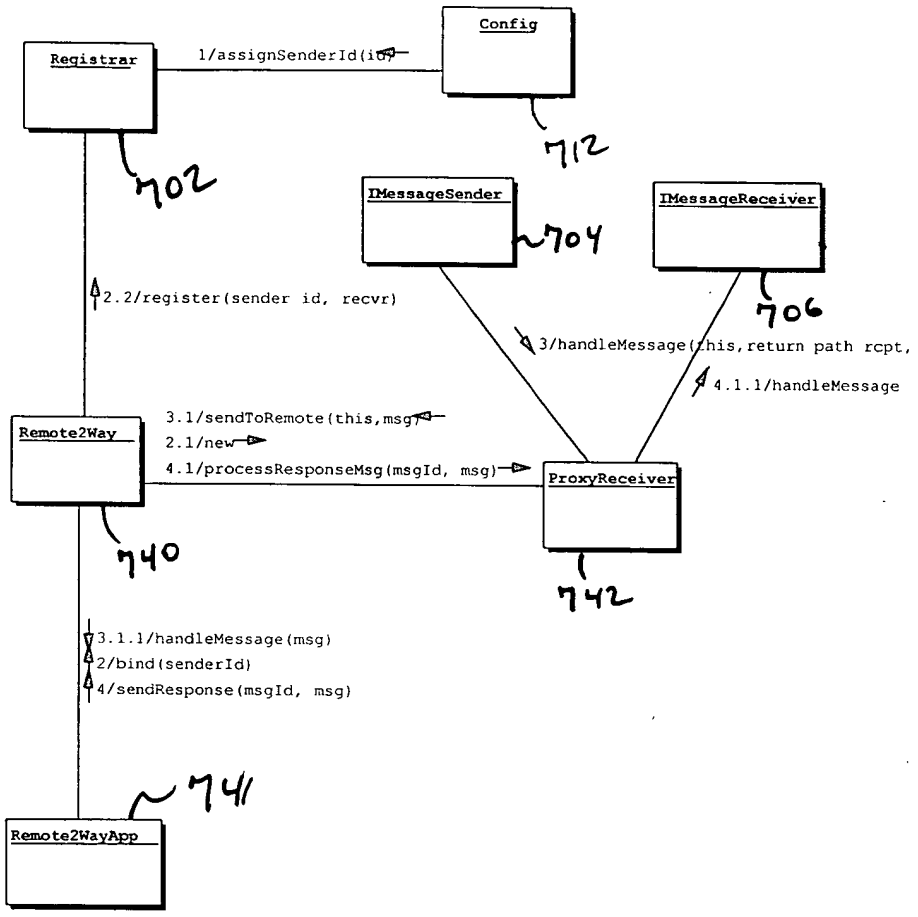


FIG. 9C

Core

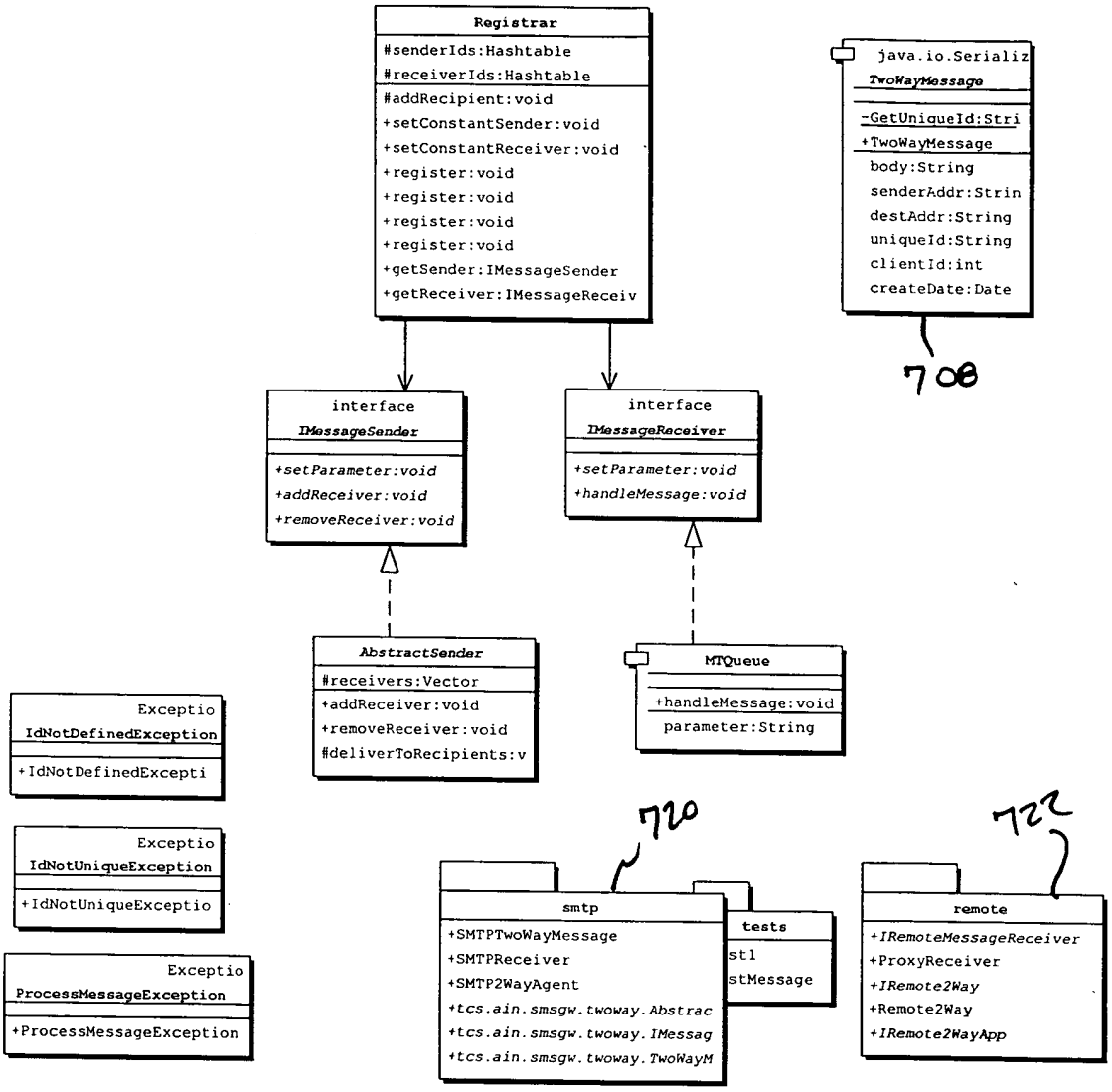

Registrar
#senderIds:Hashtable
#receiverIds:Hashtable
#addRecipient:void
+setConstantSender:void
+setConstantReceiver:void
+register:void
+register:void
+register:void
+register:void
+getSender:IMessageSender
+getReceiver:IMessageReceiv
java.io.Serializ
TwoWayMessage
-GetUniqueId:Stri
+TwoWayMessage
body:String
senderAddr:Strin
destAddr:String
uniqueId:String
clientId:int
createDate:Date
708
interface
IMessageSender
+setParameter:void
+addReceiver:void
+removeReceiver:void
interface
IMessageReceiver
+setParameter:void
+handleMessage:void
AbstractSender
#receivers:Vector
+addReceiver:void
+removeReceiver:void
#deliverToRecipients:v
MTQueue
+handleMessage:void
parameter:String
Exceptio
IdNotDefinedException
+IdNotDefinedExcepti
Exceptio
IdNotUniqueException
+IdNotUniqueExceptio
Exceptio
ProcessMessageException
+ProcessMessageException
720
smtp
+SMTPTwoWayMessage
+SMTPReceiver
+SMTP2WayAgent
+tcs.ain.smsgw.twoway.Abstrac
+tcs.ain.smsgw.twoway.IMessag
+tcs.ain.smsgw.twoway.TwoWayM
tests
st1
stMessage
722
remote
+IRemoteMessageReceiver
+ProxyReceiver
+IRemote2Way
+Remote2Way
+IRemote2WayApp

FIG. 10A

Remote

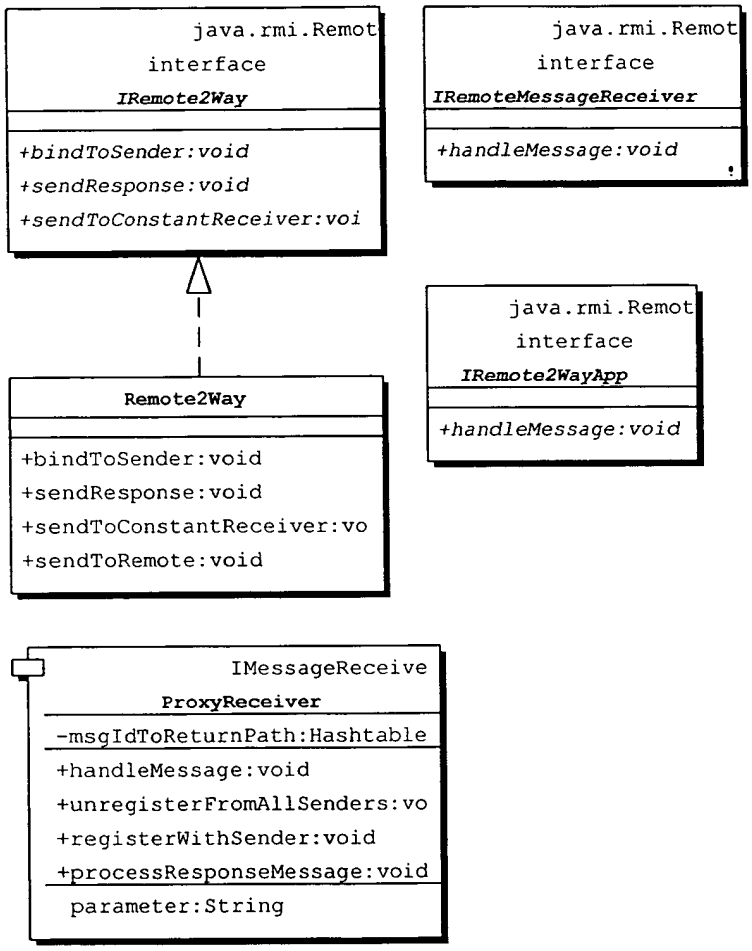


FIG. 10B

SMTP

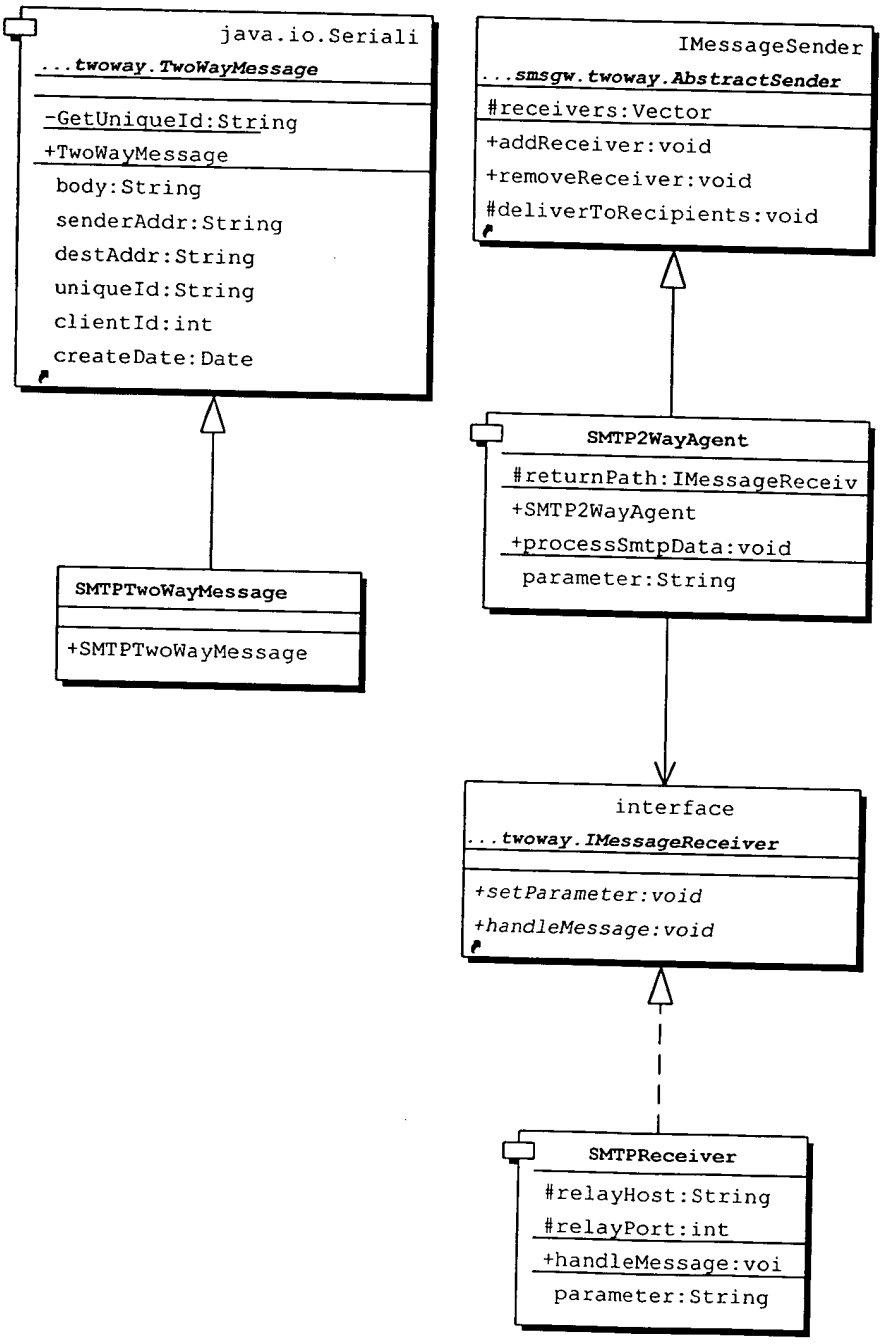
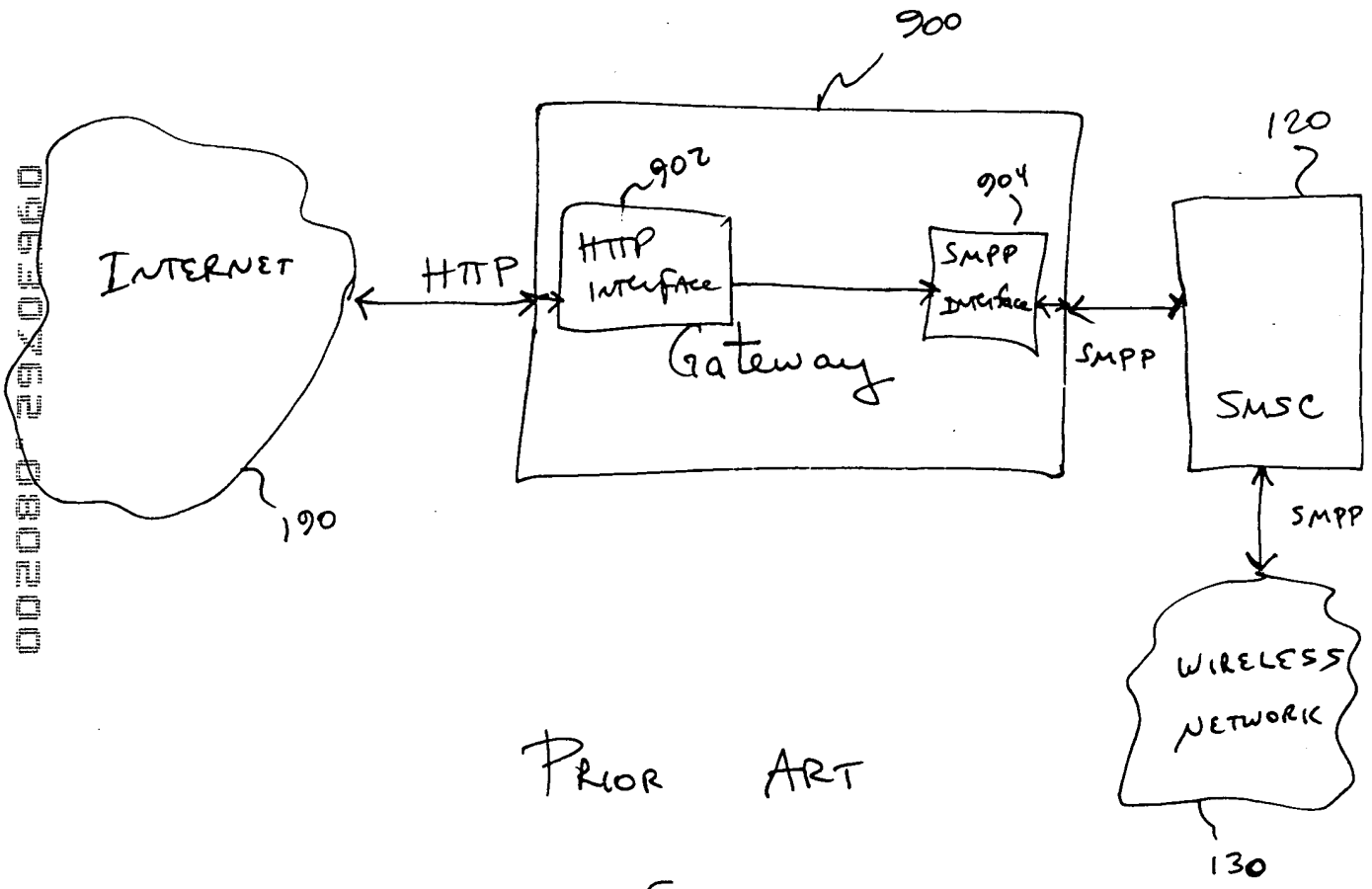

java.io.Seriali
...twoway.TwoWayMessage
-GetUniqueId:String
+TwoWayMessage
body:String
senderAddr:String
destAddr:String
uniqueId:String
clientId:int
createDate:Date
IMessageSender
...smsgw.twoway.AbstractSender
#receivers:Vector
+addReceiver:void
+removeReceiver:void
#deliverToRecipients:void
SMTP2WayAgent
#returnPath:IMessageReceiv
+SMTP2WayAgent
+processSmtpData:void
parameter:String
SMTPTwoWayMessage
+SMTPTwoWayMessage
interface
...twoway.IMessageReceiver
+setParameter:void
+handleMessage:void
SMTPReceiver
#relayHost:String
#relayPort:int
+handleMessage:voi
parameter:String

FIG. 10C



PRIOR ART

FIG. 11